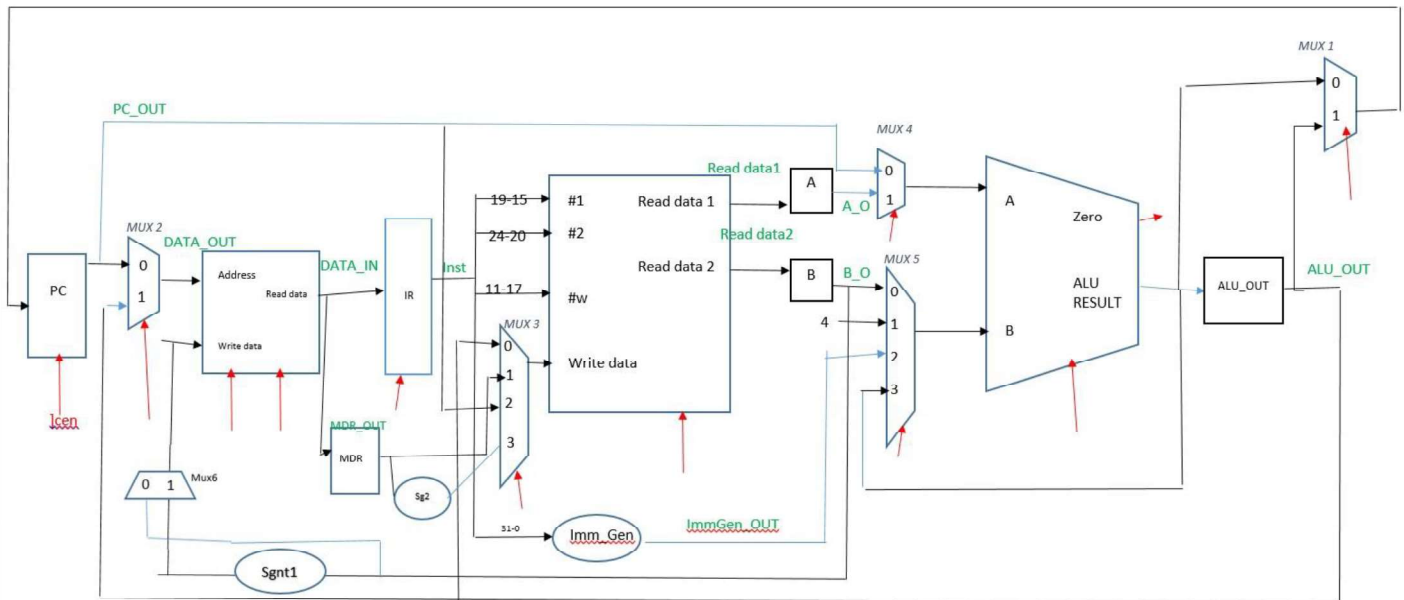
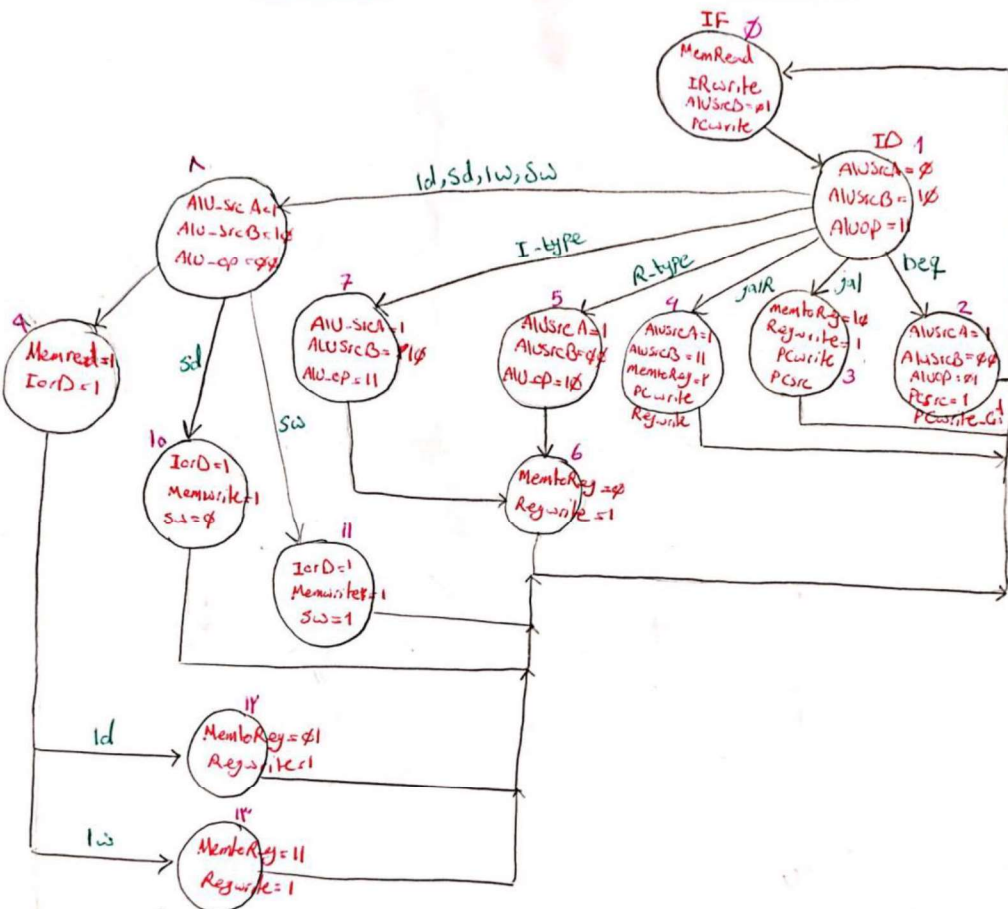


## Data path:



## Control unit:

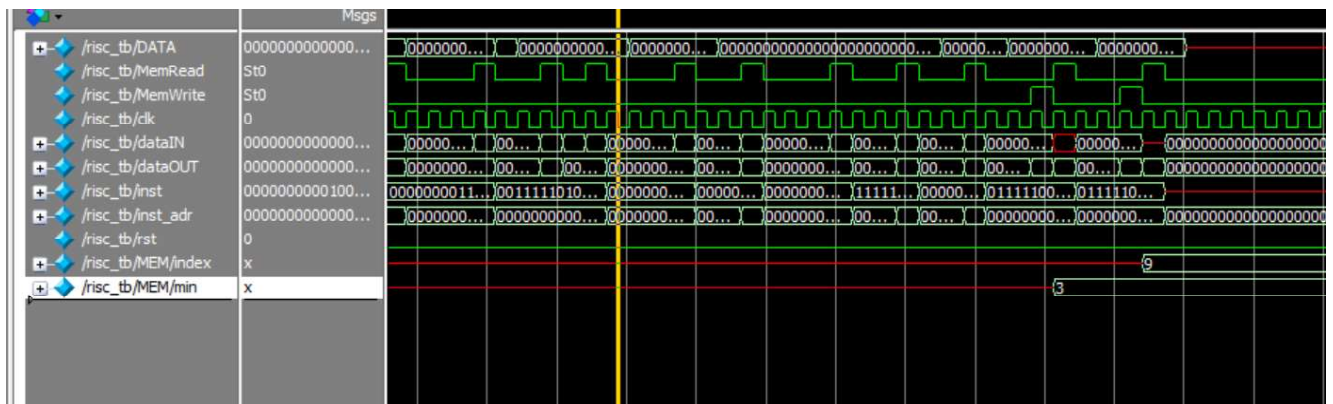




## Simulations:

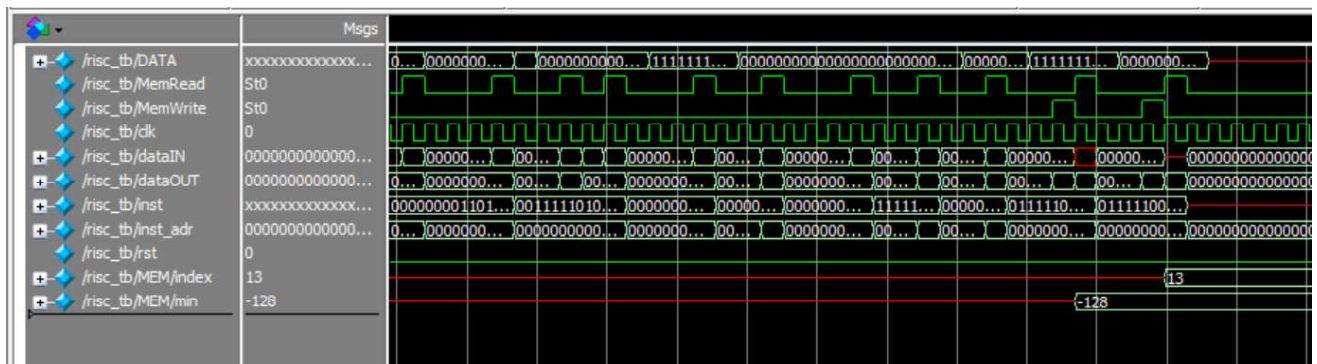
### Case I:

```
= 64'd8; //0
= 64'd111; //1
= 64'd11; //2
= 64'd5; //3
= 64'd4; //4
= 64'd5; //5
= 64'd6; //6
= 64'd7; //7
= 64'd7; //8
= 64'd3; //9
= 64'd101; //10
= 64'd11; //11
= 64'd12; //12
= 64'd13; //13
= 64'd5; //14
= 64'd14; //15
= 64'd14; //16
= 64'd11; //17
= 64'd11; //18
= 64'd11; //19
```



## Case II:

```
64'd8; //0
64'd111; //1
64'd11; //2
64'd5; //3
64'd4; //4
64'd5; //5
64'd6; //6
64'd7; //7
64'd7; //8
64'd3; //9
64'd101; //10
64'd11; //11
64'd12; //12
-64'd128; //13
64'd5; //14
64'd14; //15
64'd14; //16
64'd11; //17
64'd11; //18
64'd11; //19
```

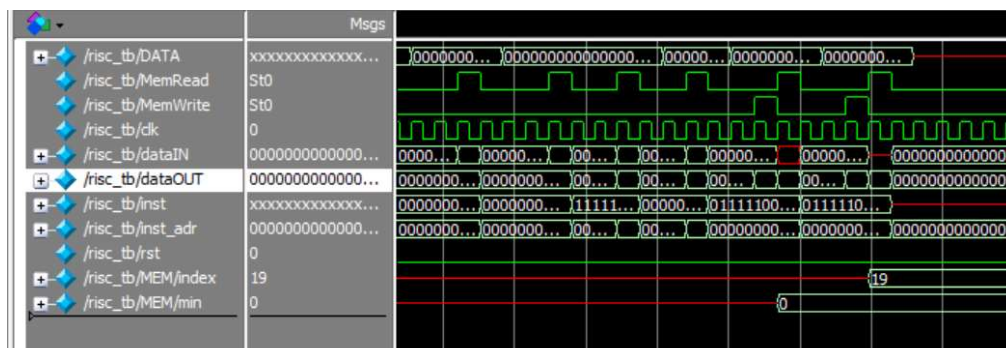


### Case III:

```

= 64'd8;      //0
= 64'd1111;   //1
= 64'd11;     //2
= 64'd5;      //3
= 64'd4;      //4
= 64'd5;      //5
= 64'd6;      //6
= 64'd7;      //7
= 64'd7;      //8
= 64'd3;      //9
= 64'd101;    //10
= 64'd11;     //11
= 64'd12;     //12
= 64'd13;     //13
= 64'd5;      //14
= 64'd14;     //15
= 64'd14;     //16
= 64'd11;     //17
= 64'd11;     //18
= 64'd0;      //19

```



**LW,SW:**

